draft-chang-6tisch-msf

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Status

- -00 published October 30, 2017
  - Presented at IETF100 Singapore
- Comments
  - 4 from Yasuyuki Tanaka (implementor)
- Implementations
  - OpenWSN (firmware, www.openwsn.com)
  - 6TiSCH simulator (simulation software, https://bitbucket.org/6tisch/simulator/)
- -01 published March 1, 2018
  - Presented at 6TISCH Interim, 2 March 2018
  - Presented at IETF101 London, 21 March 2018

Comment 1: behavior when unreachable

From Yasuyuki Tanaka, 13 Feb 2018 (https://www.ietf.org/mail-archive/web/6tisch/current/msg05723.html):

When a neighbor is declared unreachable, the node MUST issue a 6P CLEAR to that neighbor (which can fail at the link-layer), and MUST remove all dedicated links with that neighbor from its own schedule.

Changes
- MUST issue a 6P CLEAR - > MAY issue a 6P CLEAR
- remove all dedicated links -> remove all dedicated cells

Comment 2: 6P timeout calculation

From Yasuyuki Tanaka, 13 Feb 2018 (https://www.ietf.org/mail-archive/web/6tisch/current/msg05723.html) and discussions on ML:

Instead of a constant value, calculate as
(1/C)*(1/PDR)*SIXP_TIMEOUT_SEC_FACTOR
where:
* *C represents the number of cells per second scheduled to that neighbor*
* *PDR represents the average of those cells*
* *SIXP_TIMEOUT_SEC_FACTOR is a security factor, a constant*

Changes
* Added to -01

Comment 3: clarify use of shared cell

From Yasuyuki Tanaka, 13 Feb 2018 (https://www.ietf.org/mail-archive/web/6tisch/current/msg05723.html):

>   *MSF uses the minimal cell to exchange the following packets:*
> *...*
>
>   *4. The first 6P packet a node issues to a neighbor it doesn't have*
>   *dedicated cells to, as defined by*
>   *[I-D.ietf-6tisch-6top-protocol]. These are unicast frames.*

The minimal cell is used for not only the first 6P packet but also subsequent packets associated with a 6P transaction initiated by the first packet. In this sense, I'd like to propose to replace it with:

Changes:
*   "6P packets to schedule the first dedicated cell with a neighbor. There are unicast frames."

Comment 4: wording around "Internet"

From Yasuyuki Tanaka, 13 Feb 2018 (https://www.ietf.org/mail-archive/web/6tisch/current/msg05723.html):

> *MSF is designed to operate in a wide range of application domains.*
> *It is optimized for applications with regular upstream traffic (from*
> *the nodes to the Internet).*

"The internet" sounds too specific. "From the nodes toward the root" would be better?

Changes
- Changed to:

MSF is designed to operate in a wide range of application domains.
It is optimized for applications with regular upstream traffic (from
the nodes to the root).

Summary of changes in -01

- All 4 comments taken into account
  - behavior when unreachable
  - 6P timeout calculation
  - clarify use of shared cell
  - wording around "Internet"
- Updates the Return Code, following changes in 6P-10
- Fix typos

Implementations

- Per Appendix A:

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OpenWSN:  MSF is being implemented in the OpenWSN project [OpenWSN]
    under a BSD open-source license.  The authors of this document are
    collaborating with the OpenWSN community to gather feedback about
    the status and performance of the protocols described in this
    document.  Results from that discussion will appear in this
    section in future revision of this specification.  More
    information about this implementation at http://www.openwsn.org/.
6TiSCH simulator  The 6TiSCH simulator is a Python-based high-level
    simulator on which MSF is being implemented.  More information at
    https://bitbucket.org/6tisch/simulator/.
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Conclusion

- Draft answers milestone "*Oct 2017 - Initial submission of draft-ietf-6tisch-6top-sf0 to the IESG*"

- Draft is stable, implemented, tested in simulation and testbed setup

- -01 presented at interim on 2 March 2018:
  - IETF WG state changed to Candidate for WG Adoption (after consensus)
  - Document shepherd changed to Thomas Watteyne

- Ask the chairs to call for WG adoption